

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00004FW
Revision No:
3

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

This is to certify:**That the Marine evacuation systems**

with type designation(s)
Viking Evacuation Mini Slide - VEMS - 2.8, 4.0 & 5.0 m

Issued to
Viking Life-Saving Equipment A/S
Esbjerg V, Denmark

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2020/1170**,
item No. MED/1.27. SOLAS 74 as amended, Reg. III/4, III/15, III/26, III/34 & X/3, LSA Code and 2000 HSC Code 8.

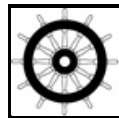
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2023-08-14**.

Issued at **Høvik** on **2020-11-16**

DNV GL local station:
Denmark CMC

Approval Engineer:
Tessa Bieber



Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005, and amended by Decision No 1/2019 dated February 22nd, 2019.

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Job Id: **344.1-001393-7**
Certificate No: **MEDB00004FW**
Revision No: **3**

Product description

'VEMS'

Is a marine evacuation system with an inflatable slide and an integrated automatically self-righting or open reversible liferaft:

Length of slide:	2.8, 4.0 or 5.0 m
Number of persons, max.:	303 persons
Max stowage height of liferaft:	18 m
Slide chamber materials:	Conti-Tech NK205/2 and Phoenix Art. 029
Max weight of system with SOLAS B-pack:	663 kg
Max weight of system with SOLAS A-pack:	861 kg
Integrated liferaft SOLAS approval:	1 x Modified Viking 100 DKS
Integrated liferaft HSC approval:	1 x Viking 100 DKR for VEMS
Associated liferafts SOLAS approval:	2 x Viking 100 DKS
Associated liferafts HSC approval:	2 x Viking 100 DKR
Container material:	GRP

DNV GL accepts smaller associated drop-down liferafts provided the line attachments and arrangements are identical to that of the above mentioned 100 DKS or DKR liferafts.

Applications/Limitations

The marine evacuation system is approved for evacuation heights of:

- 1.5 - 1.9 metres (2.8 m slide)
- 1.9 - 2.5 metres (4.0 m slide)
- 2.5 - 3.3 metres (5.0 m slide).

The associated liferafts shall have separate MED approval and be wheelmarked.

The liferaft shall be packed and marked with SOLAS A PACK or SOLAS B PACK.

Gas cylinders and components in the pressure gas systems for inflatable LSA equipment (liferaft + slide) shall be approved type iaw ISO 15738 or equivalent standard. On ships where USCG approval is required gas cylinders shall have USCG approval.

It shall be verified that the ship on which the MES is installed is equipped with a sufficient number of rescue boats to satisfactory manning and support the towing and tow away, as applicable, of all the associated life rafts within the times allowed for embarkation as per SOLAS Ch.III/Reg.21.1.3 and 31.1.5.

Installation tests to be carried out in accordance with IMO Res. MSC.81(70), part 2, item 7.

Max evacuation capacity: 303 persons in 17 minutes and 40 seconds

Evacuation capacity in general:	specified evacuation time - 139 seconds
(139 seconds includes preparation of system and cut free of last liferaft.)	2,7 seconds/person
Example: 10 min =>	$(600-139)/2,7 = 170$ persons

The evacuation capacity is established based on test according to IMO Res. MSC 81(70), part 1, item 12.6.1, conducted 2002-05-31.

The following is to be submitted to the flag administration in each case, either by the yard, owner or equipment manufacturer:

Plan showing the MES system fully deployed on the specific vessel in side-view and cross-sectional view under required unfavourable conditions of trim and list as the type approval does not cover the requirements to installation covered by LSA Code Ch. 6.2.2.1.5 and SOLAS Ch. III and HSC Code Ch. 8. Details shall be shown.

Job Id: **344.1-001393-7**
 Certificate No: **MEDB00004FW**
 Revision No: **3**

Type examination documentation


This certificate replaces certificate MEDB00004FW Rev. 2.

The following documentation is basis for the DNVGL approval:

Drawings	Date
Approved technical documentation as listed in DNV letters (ref. technical DNV GL file 344.1-001393)	2002-09-06 2003-06-19 2004-06-18 2005-01-19 2010-08-13
Reports	Date
Reports from prototype tests as listed in letters from Viking Life-Saving Equipment A/S	2002-06-27 2010-07-14
Report from Heavy weather sea trial test	2003-04-30
Prototype test reports as listed in letter with DNV ref. HEH040528LD1	2004-05-28
Calculation	Date
Calculation Report VIKING Project 2046	-
Design changes	Date
DC10437 + DC10439 - use of alternative hardener 'Beyond' + supporting documentation. Test report Nos.: - 2905, 2914, 2915 (3x over pressure test) - 2880, 2881, 2882, 2883, 2884, 2885 (seam strength tests) - Viking report: Comparison of strength in existing and alternative hardener	2018-12-10/11
DC10446 – use of alternative hardener for MES system liferafts and slides – TM-93 + supporting documentation: - Report – Strength of 'TM-93' - Design review – Use of 'Beyond'	2019-03-19
DC10447 (extension of DC 10437, DC10438, DC10439, DC 10446) – Alternative hardener on patches for all liferaft and slide production – 'Beyond' and 'TM-93'+ supporting documentation: - Report – Strength of 'Beyond' - Report – Strength of 'TM-93' - Report – Use of Alternative hardener on MES patches - Design review – Use of 'Beyond'	2019-03-19
DC10479 – Relocation of HRU unit and pressure release inside container + supporting documentation: Test report No. 3426 (drop and deployment of raft) Drawing Nos.: - ENG 20057286 Rev. 0 (Container 016-8811 for 100 DKR) - ENG 20056409 Rev. 0 (Container 016-9102 for VEMS)	2020-11-02 2020-11-02 2020-11-02

Tests carried out

Test documentation in accordance with Recommendation on Testing of Lifesaving Appliances, IMO Res. MSC 81(70), part 1, as reflected in Type Examination Documentation specified above.



Job Id: **344.1-001393-7**
Certificate No: **MEDB00004FW**
Revision No: **3**

Marking

The product is to be indelibly marked with name and address of manufacturer, type designation, dimensions and date of manufacture, the MED Mark of Conformity and USCG Approval Number (see first page). The marking shall be according to LSA Code, item 6.2.4 and 6.2.5.

The HSC approved version shall be marked according to 2000 HSC Code, Annex 11, items 4 and 5.